

To: Mr. Larry Reser, Chief of Surveys
From: Joseph H. Farmer, Professional Land Surveyor
Subject: Re: SWO4843(1), S.H. 34, Bridge over South Persimmon Creek, 4.9 miles north of the Dewey County line.

Historical Letter and Written Report

1. GENERAL
A. Survey began November 14, 2012
Survey completed March 19, 2013
B. The measurement unit for this project will be the U.S. Survey Foot.

2. SURVEY ASSIGNMENT
The above described survey was assigned to me by Mr. Larry Reser, Chief of Surveys, and completed by my crew at Cobb Engineering.

3. PURPOSE OF THIS SURVEY
The purpose of this survey is to furnish sufficient data to develop plans to construct a new bridge over South Persimmon Creek south of Slaron. The survey includes the Alignment, Topographic/Planimetric data, Surface Features/DTM data, Land Ties, Utilities, Drainage, and all other pertinent information needed to aid in the design.

4. SURVEY LIMITS
This survey began at P.O.T. Sta. 2279+25.78 (EW-54.5 % Section Line) and extends north to P.C. Sta. 2329+41.50 as established under SWO 1994(1) survey and shown on FAP No. F-418 (8) plans (approximate centerline length = 0.95 mile).

5. ALIGNMENTS
The Centerline of Survey for this project is along and identical to the centerline of present S.H. 34 as established under SWO 1994(1) survey and shown on FAP No. F-418 (8) plans.

6. STATIONING
Stationing for this survey was taken from SWO 1994(1) survey and FAP No. F-418 (8) plans.

7. HORIZONTAL CONTROL
A. Horizontal Control for this survey is NAD 83 (1993) Oklahoma State Plane Coordinate System, Lambert Projection, North Zone, and derived utilizing static GPS.
B. Primary Horizontal control was established on 2 monuments along this survey. They are 5/8 inch aluminum caps marked W-77-713 and W-77-714.
C. Secondary horizontal control was established along the centerline of survey and referenced and shown on the survey data sheets of this survey.
D. The primary control network, the secondary network and section boundaries for this survey are in compliance with NGS Second Order Class 11 standards for horizontal control (1 : 20,000).

8. VERTICAL CONTROL
A. Level datum for this survey is NGS, NAVD 88, taken from PRIMARY CONTROL POINT NO. W-77-713. A complete set of check levels was run throughout the survey using a Sokkia automatic level.
B. The adjusted levels and vertical differences between bench marks are shown in following file: SWO4843_1_V1.dgn (SDS 2) and SWO4843_1_V1_Level Worksheet.pdf
C. Accuracy - 3rd order or better before adjustment.

9. TOPOGRAPHY
Topography on this survey was obtained by utilizing the Topcon and Trimble GPS RTK systems and Total Station technology with the Trimble TSC1, TSCII, and TOPCON FC-2500 data collectors for field instruments. Centerline profile, bridge profiles, and drainage structures were obtained for the length of the project by utilizing conventional field methods. The supportive information pertaining to the surface features are available in the computer file SWO4843_1_V1_SFF.dgn and SWO4843_1_V1_TOPO.dgn.

10. DTM / CROSS SECTIONS
Cross sections on this survey were obtained by the Topcon and Trimble GPS RTK system and total station technology processed and output in the form of a DTM survey and placed in computer file SWO4843_1_V1_SFF.dgn

11. LAND TIES
Land ties for this survey were established for the following:
T-20-N, R-20-W, I.M.; Sections 3, 4, 9, and 10

A search was made for any trace of the original monuments and/or accessories. All filed certified corners received from the Oklahoma Department of Libraries were researched and noted. The original survey and survey notes were used from the following survey:
Ehad Noble Darling 10/02/1873

A complete detailed account of each corner set or used follows:
NORTHWEST CORNER OF SECTION 4, O.D.O.T. MONUMENT W-77-715, T-20-N, R-20-W, I.M. FOUND 1/2" IRON PIN WITH LS 1083 CAP 4" DEEP. MATCHES MONUMENT DESCRIPTION ON OCCR FILED BY R. JIVIDEN, LS 1083, ON 10-25-85.

SOUTH QUARTER CORNER OF SECTION 33, O.D.O.T. MONUMENT W-77-716, T-21-N, R-20-W, I.M. FOUND 5/8" IRON PIN WITH LS 1689 CAP 6" DEEP. MATCHES MONUMENT DESCRIPTION AND FITS 3 OF 3 REFERENCES ON OCCR FILED BY G. HUBBS, LS 1689, ON 12-18-12.

NORTH QUARTER CORNER OF SECTION 4, O.D.O.T. MONUMENT W-77-717, T-20-N, R-20-W, I.M. FOUND 1/2" IRON PIN WITH BROKEN CAP 4" DEEP. MATCHES MONUMENT DESCRIPTION ON OCCR FILED BY R. JIVIDEN, LS 1083, ON 10-25-85.

SOUTHWEST CORNER OF SECTION 34, O.D.O.T. MONUMENT W-77-718, T-21-N, R-20-W, I.M. FOUND 1/2" IRON PIN WITH LS 1083 CAP 4" DEEP. MATCHES MONUMENT DESCRIPTION AND FITS 3 OF 3 REFERENCES ON OCCR FILED BY F. WINDHOLZ, LS 1421, ON 11-06-12.

NORTHEAST CORNER OF SECTION 4, O.D.O.T. MONUMENT W-77-719, T-20-N, R-20-W, I.M. FOUND 1/2" IRON PIN WITH LS 1083 CATP 8" DEEP. MATCHES MONUMENT DESCRIPTION AND FITS 1 OF 1 REMAINING REFERENCES ON OCCR FILED BY R. JIVIDEN, LS 1083, ON 10-25-85.

SOUTH QUARTER CORNER OF SECTION 34, O.D.O.T. MONUMENT W-77-720, T-21-N, R-20-W, I.M. FOUND 1/2" IRON PIN WITH LS 1083 CAP 4" DEEP. MATCHES MONUMENT DESCRIPTION AND FITS 2 OF 2 REMAINING REFERENCES ON OCCR FILED BY F. WINDHOLZ, LS 1421, ON 11-06-12.

NORTH QUARTER CORNER OF SECTION 10, O.D.O.T. MONUMENT W-77-730, T-20-N, R-20-W, I.M. FOUND 60D NAIL 2" DEEP. MONUMENT FITS 4 OF 4 REMAINING REFERENCES ON OCCR FILED BY R. JIVIDEN, LS 1083, ON 04-11-08 AND F. WINDHOLZ, LS 1421, ON 02-25-05.

NORTHEAST CORNER OF SECTION 10, O.D.O.T. MONUMENT W-77-731, T-20-N, R-20-W, I.M. FOUND 1/2" IRON PIN WITH BROKEN PLASTIC CAP 4" DEEP. MATCHES MONUMENT DESCRIPTION AND FITS 2 OF 2 REMAINING REFERENCES ON OCCR FILED BY R. JIVIDEN, LS 1083, ON 04-11-06.

EAST QUARTER CORNER OF SECTION 10, O.D.O.T. MONUMENT W-77-732, T-20-N, R-20-W, I.M. FOUND 1/2" IRON PIN WITH LS 4121 CAP 1" DEEP. MATCHES MONUMENT DESCRIPTION AND FITS 3 OF 3 REFERENCES ON OCCR FILED BY F. WINDHOLZ, LS 1421, ON 09-28-09.

WEST QUARTER CORNER OF SECTION 10, O.D.O.T. MONUMENT W-77-733, T-20-N, R-20-W, I.M. FOUND 1/2" IRON PIN WITH LS 1083 CAP. MATCHES MONUMENT DESCRIPTION AND FITS 4 OF 4 REFERENCES ON OCCR FILED BY F. WINDHOLZ, LS 1421, ON 09-28-09.

WEST QUARTER CORNER OF SECTION 9, O.D.O.T. MONUMENT W-77-734, T-20-N, R-20-W, I.M. SET 5/8" IRON PIN WITH CA 32 CAP 4" DEEP. SINGLE PROPORTION MEASUREMENT BETWEEN SECTION CORNERS 0.5 MILE NORTH AND 0.5 MILE SOUTH. MONUMENT FALLS IN LINE WITH THE FENCE RUNNING EAST.

SOUTHWEST CORNER OF SECTION 9, O.D.O.T. MONUMENT W-77-735, R-20-N, R-20-W, I.M. FOUND 1/2" IRON PIN WITH CA 980 CAP 1" DEEP. MATCHES MONUMENT DESCRIPTION AND FITS 4 OF 4 REFERENCES ON OCCR FILED BY A. FELDER, LS 864, ON 05-04-08.

SOUTH QUARTER CORNER OF SECTION 9, O.D.O.T. MONUMENT W-77-736, T-20-N, R-20-W, I.M. FOUND 60D NAIL 1" DEEP. MONUMENT FITS 3 OF 3 REFERENCE ON OCCR FILED BY G. HUBBS, LS 1689, ON 09-18-12.

SOUTHWEST CORNER OF SECTION 10, O.D.O.T. MONUMENT W-77-737, T-20-N, R-20-W, I.M. FOUND 1/2" IRON PIN WITH BROKEN CAP 4" DEEP. MATCHES MONUMENT DESCRIPTION AND FITS 3 OF 3 REFERENCES ON OCCR FILED BY F. WINDHOLZ, LS 1421, ON 09-28-09.

SOUTH QUARTER CORNER OF SECTION 10, O.D.O.T. MONUMENT W-77-738, T-20-N, R-20-W, I.M. FOUND 1/2" IRON PIN WITH BROKEN CAP 4" DEEP. MATCHES MONUMENT DESCRIPTION AND FITS 3 OF 3 REFERENCES ON OCCR FILED BY F. WINDHOLZ, LS 1421, ON 09-28-09.

SOUTHEAST CORNER OF SECTION 10, O.D.O.T. MONUMENT W-77-739, O.D.O.T. MONUMENT W-77-739, T-20-N, R-20-W, I.M. FOUND 1/2" IRON PIN WITH LS 1421 CAP. MATCHES MONUMENT DESCRIPTION AND FITS 3 OF 3 REFERENCES ON OCCR FILED BY F. WINDHOLZ, LS 1421, ON 09-28-09.

12. EXISTING RIGHT-OF-WAY
Existing right of way as shown on this survey is based off of FAP No. F-418(8) Plans and confirmed utilizing Right-of-Way deeds where available.

13. UTILITIES
A. All utility companies servicing this survey project were contacted through "CALL OKIE"
B. **OneOK.ONG**: An underground Transmission Pipeline Parallels SH-34 from Approximate Sta. 2321+81.37 101.34' Rt. to Approximate Sta. 2329+41.46 101.31' Rt. and continues northwesterly beyond the project limits. This pipeline was not marked in the field by a utility locating service or OneOK.ONG. (The described location of this pipeline is approximate, was not field verified, and was determined from a utility atlas provided by OneOK.ONG.
Pioneer Telephone: Multiple underground telephone line locations and an underground fiber optic line location were not marked in the field by a utility locating service or Pioneer Telephone. (The described location of the following lines are approximate, were not field verified, and were determined from a utility atlas provided by Pioneer Telephone.
Paralleling from (Sta. 2279+25.78 63.85' Lt. to Sta. 2329+42.50 65.99' Lt.) Crossing at (Sta. 2305+14.53)
Paralleling from (Sta. 2305+27.30 50.33' Rt. to Sta. 2306+19.17 118.17' Rt.)
Paralleling from (Sta. 2318+37.00 76.26' Rt. to Sta. 2329+40.38 77.74' Rt.)
Paralleling from (Sta. 2279+27.20 85.59' Rt. to Sta. 2329+41.14 63.29' Rt.)

C. Information regarding type, size, ownerships, location, depth, etc. is placed in computer file SWO4843_1_V1_SD-7.pdf.

14. ENVIRONMENTAL CONCERNS
An old water well is potentially located at Sta. 2304+89.50 59.42' Rt. According to the Land Owner this is a hand poured concrete pad with a hole in the center of it.

15. DRAINAGE INFORMATION
Drainage areas were determined from USGS Stream Stats, USGS Quad Maps in the project area, and data taken from USGS Basin Characteristics Report. Data was field verified for accuracy and placed in computer file SWO4843_1_V1_DRA.dgn and SWO4843_1_V1_USGS Drainage.pdf

16. SURVEY DATA SHEETS
Survey Data Sheets were submitted in the form of a Microstation Design File archived on the O.D.O.T. Mainframe Computer, as per O.D.O.T. Survey Division Standards. These will be incorporated into the set of design drawings and are in substantial conformity with the O.D.O.T. Survey Division Standards for Survey Data Sheets, as maintained on O.D.O.T. (s) Intranet.

17. SUBMISSION OF SURVEY DATA
A. Historical Letter & Written Report.
B. Form SD-1, Transmittal Letter w/FSVARCH.INDEX attached.
C. Form SD-7, Public and Privately Owned Utilities List w/ vicinity maps where available.
D. Form SD-11, Position and Description of Survey Monuments (GPS control monuments, Brass/Aluminum Caps for benchmarks, etc.) (if applicable).
E. Form SD-20, Survey Control Data Statement.
F. Form SD-41, Surveyor's Certification.
G. Cogo Data (coordinate list with alignments).
H. Benchmarks & Check Levels list, including the SWO and description of the project.
I. Original and reduced copy (8" x 11") of each Certified Land Corner form.
J. NGS Recovery Form for each horizontal and vertical monument recorded or used during the course of the survey.

18. EQUIPMENT USED
Topcon GR3 GPS
Topcon Hyper II GPS
Topcon IS 3" Imaging Robotic Total Station
Topcon FC-2500 Data Collectors
GPT-9005A 5" robotic Total Station
Topcon GPT 3000W Total Station
Topcon GPT 3005W Total Station
Topcon GTS 3000 Total Station
Topcon GTS 313 Total Station
Trimble TSC 1 Data Collectors
Trimble TSC 2 Data Collectors
Trimble 5700 GPS
Trimble 5800 GPS
Sokkia SDL 30 Digital Level

Inroads working in Microstation Platforms
AutoCAD Civil 3D
Microstation

19. Personnel
Darren Smith, P.L.S. Division Manager 4
Adam Hinds, P.L.S. Survey Manager 1
Joe Farmer, P.L.S. Technician Manager 2
Taner Wentworth, L.S.I. Survey Intern 1
Brian Bird, L.S.I. Survey Intern 1
Corey Simmons, Technician 1
Sam McGee, Technician 1
Eric Mentzer, Technician 3
Eric Oldham, Technician 1
Matthew Overall, Technician 1
Rebecca Robichaux, Technician 2
Parker Kugler, Technician 1
Matthew Chernicky, Lead ROW Agent

FILE NO.	DATE	BY	REVISIONS

NORTH QUARTER CORNER OF SECTION 3, O.D.O.T. MONUMENT W-77-721, T-20-N, R-20-W, I.M. FOUND 1/2" IRON PIN WITH LS 1421 CAP 3" DEEP. MATCHES MONUMENT DESCRIPTION AND FITS 4 OF 4 REFERENCES ON OCCR FILED BY F. WINDHOLZ, LS 1421, ON 01-12-11.

SOUTHEAST CORNER OF SECTION 34, O.D.O.T. MONUMENT W-77-722, T-21-N, R-20-W, I.M. FOUND 1/2" IRON PIN WITH BROKEN CAP 4" DEEP. MATCHES MONUMENT DESCRIPTION AND 1 OF 1 REMAINING REFERENCES ON OCCR FILED BY F. WINDHOLZ, LS 1421, ON 06-25-96.

NORTHEAST CORNER OF SECTION 3, O.D.O.T. MONUMENT W-77-723, T-20-N, R-20-W, I.M. SET 5/8" IRON PIN WITH CA 32 CAP 6" DEEP. MONUMENT WAS SET BY SPLITTING NORTH-SOUTH FENCE LINES TO THE SOUTH AND EXTENDING THAT LINE NORTH TO MEET A LINE BETWEEN THE SOUTHWEST CORNER OF SECTION 35 AND THE SOUTHEAST CORNER OF SECTION 35.

EAST QUARTER CORNER OF SECTION 3, O.D.O.T. MONUMENT W-77-724, T-20-N, R-20-W, I.M. SET 5/8" IRON PIN WITH CA 32 CAP 6" DEEP. MONUMENT WAS SET ON LINE BETWEEN SECTION CORNERS 0.5 MILE SOUTH AND IN LINE WITH FENCE RUNNING EAST.

EAST QUARTER CORNER OF SECTION 4, O.D.O.T. MONUMENT W-77-725, T-20-N, R-20-W, I.M. SET 5/8" IRON PIN WITH CA 32 CAP 2" DEEP. MONUMENT WAS ESTABLISHED USING SH-34 F.A.P. NO. F-418(8) HIGHWAY PLANS.

WEST QUARTER CORNER OF SECTION 4, O.D.O.T. MONUMENT W-77-726, T-20-N, R-20-W, I.M. SET 5/8" IRON PIN WITH CA 32 CAP 6" DEEP. MONUMENT WAS SET ON LINE BETWEEN SECTION CORNERS 0.5 MILE NORTH AND 0.5 MILE SOUTH AND IN LINE WITH RUNNING FENCE.

NORTHWEST CORNER OF SECTION 9, O.D.O.T. MONUMENT W-77-727, T-20-N, R-20-W, I.M. FOUND 1/2" IRON PIN WITH BROKEN ORANGE CAP 8" DEEP. MATCHES MONUMENT DESCRIPTION AND FITS REFERENCES ON OCCR FILED BY G. HUBBS, LS 1689, ON 09-18-12.

NORTH QUARTER CORNER OF SECTION 9, O.D.O.T. MONUMENT W-77-728, T-20-N, R-20-W, I.M. SET 5/8" IRON PIN WITH CA 32 CAP 6" DEEP. SINGLE PROPORTION MEASUREMENT BETWEEN SECTION CORNERS 0.5 MILE EAST AND 0.5 MILE WEST.

NORTHWEST CORNER OF SECTION 10, O.D.O.T. MONUMENT W-77-729, T-20-N, R-20-W, I.M. FOUND BENT 1/2" IRON PIN 8" DEEP. MATCHES MONUMENT DESCRIPTION AND FITS ALL REFERENCES ON OCCRS FILED BY R. JIVIDEN, LS 1083, ON 04-11-06 AND F. WINDHOLZ, LS 1421, ON 02-25-05.

P.L.S.	J.H.F.	04/24/13	SH-34 BRIDGE OVER S. PERSIMMON CREEK, 4.9 MI. N. OF DEWEY COUNTY LINE	WOODWARD COUNTY
DRAWN	J.E.M.	04/24/13		
CHECKED	J.H.F.	04/24/13		
APPROV.	J.H.F.	04/24/13		
CREW CHIEF	T.J.W.		SWO NO. <u>4843(1)</u>	J/P NO. <u>28825(04)</u> SHEET NO. <u>11</u>

HISTORICAL LETTER & WRITTEN REPORT